

Date: Thursday, 9/21/2006 3:21:46 PM
 User: Kim Johnston

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : OH-58 SKIDTUBE ASSEMBLY
 Job Number : 28688A
 Estimate Number : 10475
 P.O. Number : N/A
 This Issue : 9/21/2006 S.O. No. : N/A
 Prsht Rev. : NC
 First Issue : N/A Type : LANDING GEAR
 Previous Run : 28687A
 Part Number : D058672041
 Drawing Number : D2922 REV A1
 Project Number : N/A
 Drawing Revision : A1
 Material : N/A
 Due Date : 10/15/2006 Qty: 1 Um: Each
 Written By :
 Checked & Approved By : *[Signature]* 06.09.21
 Comment : Est Rev: C 02.06.28 Re-format; ECN 258 KJ
 Est Rev: D 06.02.06 Added Dt8025 EC

Additional Product

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 DC DOCUMENT CONTROL



Comment: DOCUMENT CONTROL

Photocopy bluefile & type labels per PPP D058-672-041 CHG 001

[Signature] 06-09-28 (1)

2.0 D2620 Bent 206 Skidtube



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part Number Description Batch
 1 D2620 Bent Tube 3" OD B28457 Pm 06-10-100

3.0 LANDING GEAR 1 LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Deburr Fwd edge of tube Pm 06-10-100

2-Weld D2794 cap as per QSI 004 and Dwg D2922. Use aluminum rod.

A/R Aluminum Rod

[Signature] 06-10-10

3-Cut aft end of D2620 bent tube as per dwg D2922

[Signature] 06-10-10

4-Drill pilot holes using drill jig DT8480 and DT8025 open to 0.312" dia.

[Signature] 06-10-10

5-Drill holes for wearplates using DT8487 Open to 0.297" dia.

[Signature] 06-10-10

6-Drill holes for aft cap as per Dwg D2922 using drill jig DT 8025. Open using #6 Drill Bit

[Signature] 06-10-10

8-Remove inner indexing ridge on aft end of skidtube as per Dwg D2922

[Signature] 06-10-10

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign. & Date			

NOTE: Date & initial all entries

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Drawing Name: 0H-58 SKIDTUBE ASSEMBLY

Job Number: 28688A

Part Number: D058672041

Job Number:



Seq. #:

Machine Or Operation:

Description :

9-Deburr and Blow out all chips form inside the tube

Pm'06-10-10①

4.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Pm'06-10-12①



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

5.0

D2923

Web



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part Number Description Batch

1 D2923 Web

B27589

Pm'06-10-13①

6.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Open holes to finished size as per Dwg D2922(without cutting fluid)

Pm'06-10-12①

2-Countersink crossbolt spacer holes as per Dwg D2922(without cutting fluid)

Pm'06-10-12①

3-Deburr and Blow out all chips from inside the tube

Pm'06-10-12①

4-Bond D2923 web in place as per QSI 015. Ensure holes lineup

A/R Sikaflex-291

M101953

Sikaflex expire date:

06-10-01

Pm'06-10-13①

7.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

DP

6-10-10

8.0

D2794

Cap



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Qty

Part Number Description

1 D2794

Fwd Cap

Batch

314400 BE 06-10-10

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

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Job Number: 28688A

Part Number: D058672041

Job Number:



Seq. #: Machine Or Operation: Description :

9.0

D2649

Crossbolt Spacer



Comment: Qty.: 22.0000 Each(s)/Unit Total: 22.0000 Each(s)

Pick:

Qty Part Number Description Batch

22 D2649

Crossbolt spacer

B-28250 BE 06-10-16

10.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Weld D2649 cross bolt spacers as per QSI 004 and Dwg D2922.(Remember to back drill each hole to 0.250" before welding the other side)

A/R Aluminum Rod

M1010 BE 06-10-16

3-Grind welds flush as per Dwg D2922 *Prm 06-10-16*

4-Counterbore 5/16" x 0.750" deep as per Dwg D2922 *Prm 06-10-16*

11.0

QC5/9

WELD INSPECTION



Comment: WELD INSPECTION

06-10-26

PD 06-10-17

12.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

M101575

YK 06/11/02 X1

13.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

9.11 06/11/03

(1)

14.0

D26483

Wearpad



Comment: Qty.: 5.0000 Each(s)/Unit Total: 5.0000 Each(s)

Pick:

Qty Part Number Description Batch

5 D2648-3

Wearpad

B27169

a.m

06/11/03 (1)

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes ☐ No ☒ DQA: Date: 06/11/17
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
06-10-17	10.0	Aft SADDLE holes are too high-up on ridge, causing the saddle to Jack up onto the ridge.	<u> </u>	Remove x-bolt spacers, Rework hole, and replace x-bolt spacers. and weld & grind flush. Ensure holes are centered on ridge.	<u>AE</u> 06-10-17	<u> </u> 06-10-26	<u> </u>	<u> </u> 06-10-17

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Job Number: 28688A

Part Number: D058672041

Job Number:



Seq. #:

Machine Or Operation:

Description :

15.0

D265615

Wearplate



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part Number Description Batch

1 D2656-15 Wearshoe B24845

16.0

D265621

Wearplate



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part Number Description Batch

1 D2656-21 Wearshoe B27075

17.0

D2924

Wearshoe



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part Number Description Batch

1 D2924 Wearshoe B27927

18.0

MS27039108

Screw



Comment: Qty.: 50.0000 Each(s)/Unit Total: 50.0000 Each(s)

Pick:

Qty Part Number Description Batch

50 MS27039-1-08 Screw M102404

19.0

AN960JD10L

Washer



Comment: Qty.: 50.0000 Each(s)/Unit Total: 50.0000 Each(s)

Pick:

Qty Part Number Description Batch

50 AN960JD10L Washer M100233

a.m. 08/11/03 (1)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

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Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 0H-58 SKIDTUBE ASSEMBLY

Job Number: 28688A

Part Number: D058672041

Job Number:



Seq. #:

Machine Or Operation:

Description :

20.0

ALS41032130

Insert



Comment: Qty.: 50.0000 Each(s)/Unit Total: 50.0000 Each(s)

Pick:

Qty Part Number Description Batch

50 ALS4-1032-130 Insert m18990
or (see QSI 017)

21.0

D26511

Plug



Comment: Qty.: 20.0000 Each(s)/Unit Total: 20.0000 Each(s)

Pick:

Qty Part Number Description Batch

20 D2651-1 Plugs B 38251

22.0

D26513

O-Ring



Comment: Qty.: 20.0000 Each(s)/Unit Total: 20.0000 Each(s)

Pick:

Qty Part Number Description Batch

20 D2651-3 O-Rings B28401

23.0

D2646

Aft Cap



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part Number Description Batch

1 D2646 Aft Cap B28041

24.0

MS27039108

Screw



Comment: Qty.: 2.0000 Each(s)/Unit Total: 2.0000 Each(s)

Pick:

Qty Part Number Description Batch

2 MS27039-1-08 Screw M102404

G.M 06/11/03 6

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

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Job Number: 28688A

Part Number: D058672041

Job Number:



Seq. #:

Machine Or Operation:

Description :

25.0

AN960JD10L

Washer



Comment: Qty.: 2.0000 Each(s)/Unit Total: 2.0000 Each(s)

Pick:

Qty Part Number Description Batch

2 AN960JD10L Washer M100233

a.m 06/10/02 (1)

26.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

1-Install inserts & wearpads as per dwg D2922. Insert a drop of Sikaflex at insert hole before installing wearplates.

A/R Sikaflex-291

Sikaflex expire date: 02/07

M102107

2-Install O-Rings D2651-3 on plugs D2651-1 with Petroleum Jelly and install plugs as per Dwg D2922

3-Install D2646 Aft Cap and seal with Sikaflex adhesive.Clean excess adhesive

A/R Sikaflex-291

Sikaflex expire date: 02/07

M102107

a.m 06/11/03 (1)

3- Wing Walk as per Dwg.D2922 and QSI 005 4.4

102098

yl 06/11/08

Batch:

27.0

QC3/5

INSPECT WORK/WING WALK



Comment: INSPECT WORK/WING WALK

06/11/03 (1)

28.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: _____

M/2

29.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

06/11/07

Job Completion



Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DESIGN RF	DRAWN BY RF	DART AEROSPACE USA, INC. BELLEVUE, WA	
CHECKED [Signature]	APPROVED [Signature]	DRAWING NO. D2922	REV. A SHEET 1 OF 2
DATE 99.10.14		TITLE OH-58 SKIDTUBE ASSEMBLY SCALE NTS	
A	99.10.14	NEW ISSUE	
A1	# CP 01.08.20	Ø0.640 WAS Ø0.625	

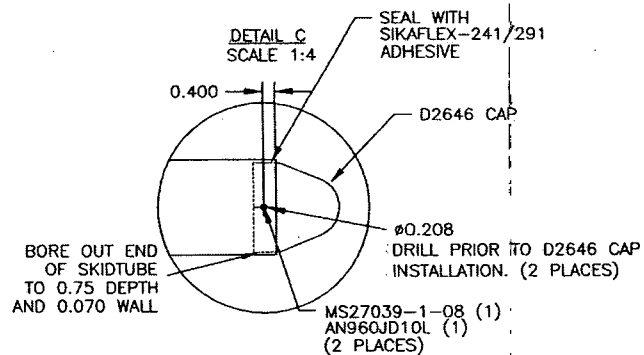
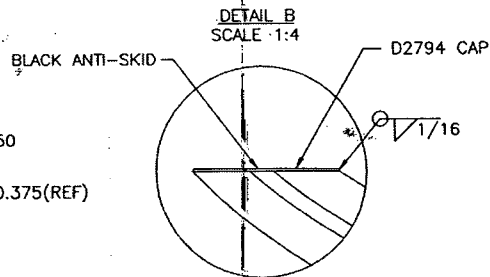
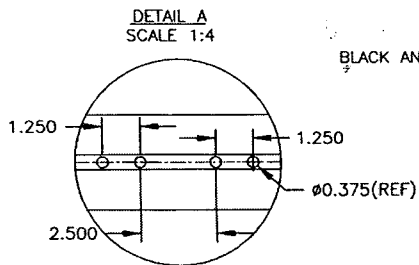
RELEASED
00.05.11 #

Qty	Part Number	Description
X	D2922-041	SKIDTUBE ASSEMBLY
*	D2600-1	EXTRUSION
1	D2646	AFT CAP
4	D2648-3	WEARPAD
1	D2648-5	WEARPAD
22	D2649	CROSS BOLT SPACER
20	D2651-1	PLUG
20	D2651-3	O-RING
1	D2656-15	WEARSHOE
1	D2656-21	WEARSHOE
1	D2794	CAP
1	D2923	WEB
1	D2924	WEARSHOE
50	AKS7-1032-130 or AKS4-1032-130 or ALS7-1032-130 or ALS4-1032-130	INSERT
52	AN960JD10L	WASHER
52	MS27039-1-08	SCREW

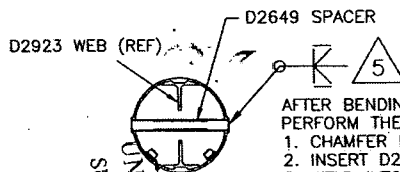
GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) LENGTH OF D2600-1 EXTRUSION REQUIRED BEFORE BENDING = 160 INCHES.*
- 3) INSERT D2923 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241/291 ADHESIVE PER DART QSI 015 AFTER BENDING.
- 4) USE DART DRILL TEMPLATE DT8406 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL AKS7-1032-130 PER SECTION D-D (50 PLACES) AFTER FINISH. INSTALL MS27039-1-08 SCREWS AND AN960JD10L WASHERS IN ALL INSERTS. SEAL WITH SIKAFLEX-241/291.
- 5) WELDING TO BE DONE PER DART QSI 004.
- 6) FINISH:
ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2923 WEB
POWDER COAT ASSEMBLY GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED TO 0.50 ABOVE LOCATION RIDGE PER DART QSI 005 4.4
- 7) INSERT D2651-1 PLUG C/W D2651-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (20 PLACES).

SHOP COPY
RETURN TO
ENGINEERING
CONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
28688A



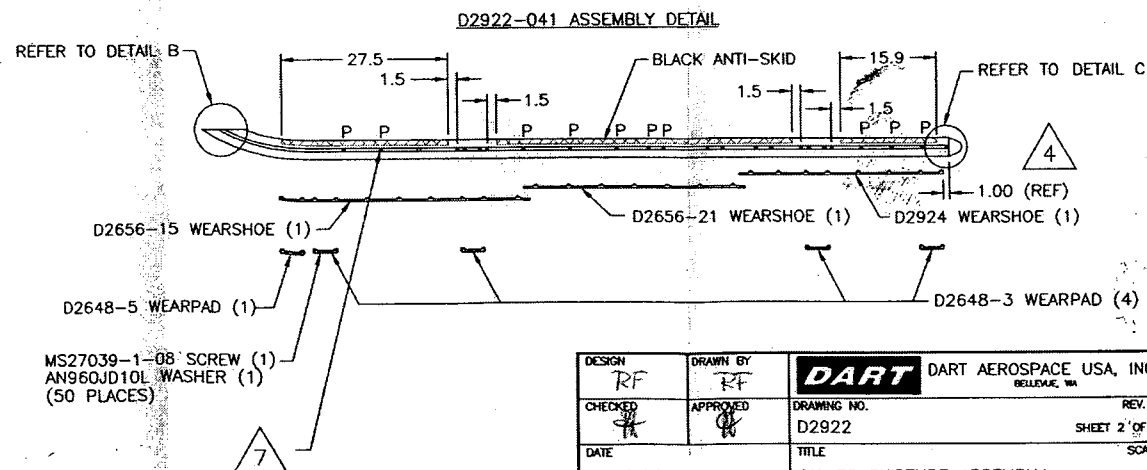
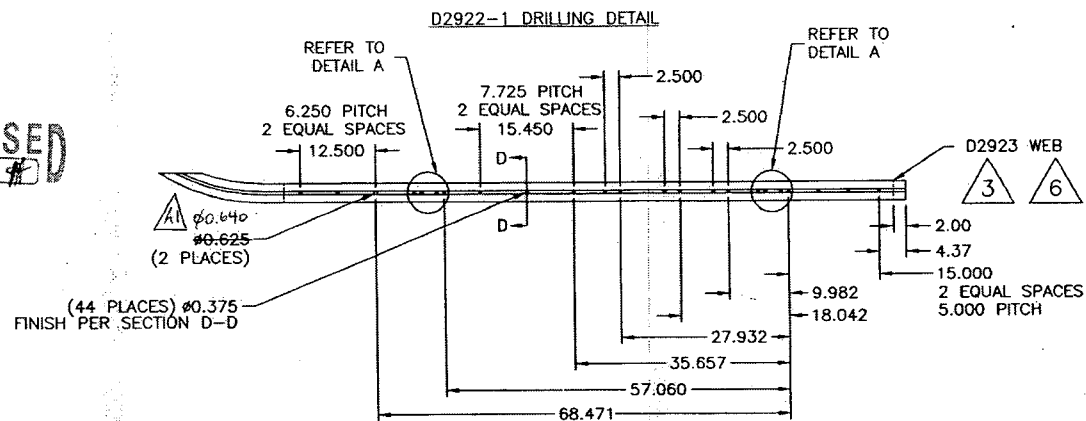
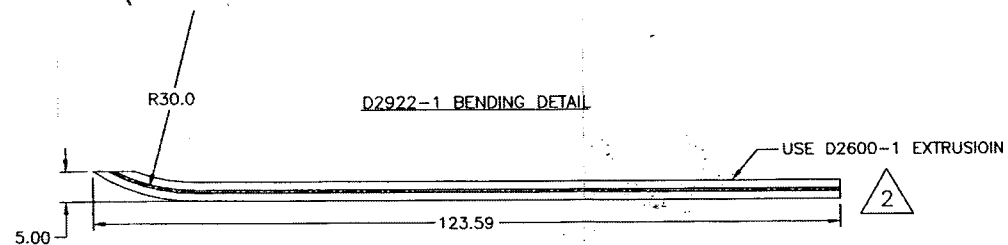
SECTION D-D
SCALE 1:4
FOR 0.375 HOLES ONLY



1. CHAMFER HOLE 0.030 X 45°
2. INSERT D2649 SPACER (22 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C'BORE D2649 SPACER TO 0.313 X 0.75 DEEP

MS27039-1-08 (1)
AN960JD10L (1)
(50 PLACES)

RELEASED
00.05.11



DESIGN RF	DRAWN BY RF	DART DART AEROSPACE USA, INC. BELLINGHAM, WA	
CHECKED RF	APPROVED RF	DRAWING NO. D2922	REV. A SHEET 2 OF 2
DATE 99.10.14	TITLE OH-58 SKIDTUBE ASSEMBLY		SCALE 1:20

NO. 28688A
WORK ORDER
SUBJECT TO AMENDMENT
WITHOUT NOTICE
UNCONTROLLED COPY
ENGINEERING
REVISION TO
AKS701032-130 (REF)
PLACES)

NO. 35

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name Barclay Elliott
Joint Welding Procedure TIG
Part number and Job number AO58672041 / B28687 A

TEST WELDS REQUIRED

BASE METAL Alum WELDING PROCESS TIG
Penetration Complete ☐ Partial ☒ Single Weld ☒ Double Weld ☐
Current AC ☒ DC ☐ Backing YES ☐ NO ☒

	Position	Vertical	Down <input type="checkbox"/>	Up <input type="checkbox"/>
Sheet Groove	1G <input type="checkbox"/>	2G <input checked="" type="checkbox"/>	3G <input type="checkbox"/>	4G <input type="checkbox"/>
Tube Groove	1G <input type="checkbox"/>	2G <input checked="" type="checkbox"/>	5G <input type="checkbox"/>	6G <input type="checkbox"/>
Sheet Fillet	1F <input type="checkbox"/>	2F <input checked="" type="checkbox"/>	3F <input type="checkbox"/>	4F <input type="checkbox"/>
Tube Fillet	1F <input type="checkbox"/>	2F <input checked="" type="checkbox"/>	4F <input type="checkbox"/>	5F <input type="checkbox"/>

Crossbolt Spacer Welded into Skidtube

TEST RESULTS

Visual Pass ☒ Fail ☐
Penetration Pass ☒ Fail ☐
Crossbolt Spacer Pass ☒ Fail ☐

The above named individual is qualified in accordance with AWS D17.1.2001 to weld

Date of Test Coupon 06/10/16

Qualifier David David